

VOICE-ACTIVATED ELECTRONIC DEVICE ASSEMBLY WITH SEPARABLE BASE

RELATED APPLICATION

This application is a continuation of U.S. patent application Ser. No. 15/717,820, titled "Voice-Activated Electronic Device Assembly with Separable Base," filed Sep. 27, 2017, now U.S. Pat. No. 10,448,520, which claims priority to U.S. Provisional Patent Application No. 62/403,681, titled "Voice-Activated Electronic Device Assembly with Separable Base," filed on Oct. 3, 2016, and U.S. Provisional Patent Application No. 62/403,685, titled "Planar Electrical Connector for an Electronic Device," filed on Oct. 3, 2016, each of which is hereby incorporated by reference in its entirety.

This application is related to U.S. patent application Ser. No. 15/717,811, titled "Planar Electrical Connector for an Electronic Device," filed on Sep. 27, 2017, which is hereby incorporated by reference in its entirety.

TECHNICAL FIELD

This application relates generally to computer technology, including but not limited to methods and systems for providing a voice activated electronic device that is used as a user interface in a smart home or media environment.

BACKGROUND

Electronic devices integrated with microphones have been widely used to collect voice inputs from users and implement different voice-activated functions according to the voice inputs. For example, many state-of-the-art mobile devices include a voice assistant system (e.g., Google Assistant) that is configured to use voice inputs to initiate a phone call, conduct a restaurant search, start routing on a map, create calendar events, add a post to a social network, recognize a song and complete many other tasks. Mobile devices often include display screens that allow users who provide the voice inputs to check the status of the tasks requested via the voice inputs. In some applications, an electronic device having a relatively simple structure and made at a low cost is employed to implement voice activated functions similar to those provided by mobile devices. Use of a display screen would significantly increase the cost of such electronic devices. Thus, there is a need for a simple and low-cost user interface to indicate a status of voice input processing in an electronic device that includes one or more microphones and functions as a voice interface.

In addition, voice activated functions currently implemented in mobile devices are limited to Internet-based functions that involve remote servers (e.g., a search engine, a social network server or a voice assistant server). The results of the voice activated functions are displayed on or used to control the mobile devices themselves (i.e., the mobile devices used to receive voice inputs), and do not impact other remote or local electronic devices accessible to a user. Thus, it would be helpful to enable voice activated electronic devices to act on user voice inputs to impact and/or control other remote or local electronic devices accessible to the user.

It would also be helpful to users if they could conveniently deploy a single voice-activated electronic device in different smart home and/or work environments that would benefit from voice-activated functionality.

SUMMARY

Electronic voice-activated devices are disclosed that provide in a small form factor voice assistant capabilities that enable users to perform a range of activities through natural language voice commands, including one or more of: controlling local and remote electronic devices, issuing requests for services and information to remote servers, and/or sending media information to other electronic devices for consumption by the user or other users. In some implementations electronic voice-activated devices include visual indicators, such as one or more full-color LEDs, that are used to indicate the status of voice processing associated with a spoken user request. In some implementations, electronic voice activated devices include one or more speakers that can be used to relay audible information to a user to provide an answer to a user request (such a search query or a request for a basketball score), provide a spoken status of a voice processing operation, play a musical selection, and/or read digest of current news or the current weather forecast. Given that voice inputs are convenient for users, some implementations allow a user to use voice inputs to control other electronic devices accessible to the user in addition to requesting Internet-based services and functions from remote servers and mobile devices.

Accordingly, implementations of electronic devices are described herein that provide an eyes-free and hands-free voice interface to enable users to activate voice-activated functions on associated media player devices, issue information requests to remote servers, consume audible information or media, and/or control smart home or smart media devices coupled within the voice-activated electronic devices in a smart media or smart home environment. In various implementations described herein, a smart media environment includes one or more voice-activated electronic devices and multiple media display devices each disposed at a distinct location. In some implementations, these devices are coupled to a cast device (e.g., a set top box, a Google Chromecast™ device or a smart TV). These devices can be directed via voice requests issued to a voice-activated device to play media items identified verbally by a user.

In some implementations, a smart home environment as described herein includes a wide range of environments/applications in which voice activated electronic devices can be employed to provide a variety of voice activated functions. For example, these applications include deployment of voice activated electronic devices in work/office environments to control work/office devices or provide on in-environment displays information responsive to user voice inputs. Network-connected and voice-activated electronic devices can also be employed, without limitation, in transportation, public, sporting and/or similar environments that provide compatible form factors and electrical and/or mechanical features to provide compatible electronic devices with convenient electrical connections (e.g., to provide/receive data signals and/or power and/or an additional user interface or display) and physical connections (e.g., to securely but temporarily position a device in a convenient location).

For example, using physical and electrical connection features described herein, a single voice activated electronic device of a user can be temporarily deployed in the user's automobile, at the user's office, in different home entertainment devices, or at a public meeting location, to provide environmentally appropriate voice activated features via a familiar voice interface (trained in some instances to recognize and respond optimally to the particular user). In addition,